

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM453; Special Conditions No. 25-425-SC]

Special Conditions: Gulfstream Aerospace LP (GALP) Model G250 airplane, Dynamic Test Requirements for Side-facing, Single-occupant Seats.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Gulfstream Aerospace LP (GALP) model G250 airplane. This airplane will have a novel or unusual design feature associated with dynamic test requirements for side-facing, single-occupant seats. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is March 18, 2011. We must receive your comments by June 20, 2011.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NM453, 1601 Lind Avenue SW., Renton, Washington, 98057-3356. You may deliver two copies to the Transport Airplane Directorate at the above address. You must mark your comments:

Docket No. NM453. You can inspect comments in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

FOR FURTHER INFORMATION CONTACT: Dan Jacquet, FAA, Airframe/Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-2676; facsimile (425) 227-1149; e-mail daniel.jacquet@faa.gov.

SUPPLEMENTARY INFORMATION:

The FAA has determined that notice of, and opportunity for prior public comment on, these special conditions are impracticable because these procedures would significantly delay issuance of the design approval and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public-comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance.

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel about these special conditions. You can inspect the docket before and after the comment closing date. If you wish to review the docket in person,

go to the address in the ADDRESSES section of this preamble between 7:30 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive by the closing date for comments. We may change these special conditions based on the comments we receive.

If you want us to acknowledge receipt of your comments on these special conditions, include with your comments a self-addressed, stamped postcard on which you have written the docket number. We will stamp the date on the postcard and mail it back to you.

Background

On March 30, 2006, GALP applied for a type certificate for their new Model G250. The Model G250 is an 8-10 passenger (19 maximum), twin-engine airplane with a 41,000-foot cruise altitude, maximum operating altitude of 45,000 feet, and a range of approximately 3,400 nautical miles. Airplane dimensions are 61.69-foot wing span, 66.6-foot overall length, and 20.8-foot tail height. Maximum takeoff weight is 39,600 pounds and maximum landing weight 32,700 pounds. Maximum cruise speed is mach 0.85, dive speed is mach 0.92. The avionics suite will be the Rockwell Collins Pro Line Fusion.

Type Certification Basis

Under the provisions of 14 CFR 21.17, GALP must show that the Model G250 meets the applicable provisions of part 25 as amended by Amendments 25-1 through 25-117.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Model G250 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, the special conditions would also apply to the other model.

In addition to the applicable airworthiness regulations and special conditions, the Model G250 airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36; and the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92-574, the “Noise Control Act of 1972.”

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under 14 CFR 21.17(a)(2).

Novel or Unusual Design Features

The Model G250 will incorporate the following novel or unusual design features:

GALP proposes installing side-facing, single-occupant seats in the Model G250 airplane. FAA has determined that the existing regulations do not provide adequate or appropriate safety standards for occupants of side-facing, single-occupant seats. Therefore, in accordance with § 21.16, special conditions need to be developed to establish a level of safety equivalent to that established in the regulations.

Discussion

Amendment 25-64 to 14 CFR part 25 was issued June 16, 1988, to revise the emergency-landing conditions that must be considered in the design of an airplane. Amendment 25-64 revised the static-load conditions in § 25.561, and added a new § 25.562 that required dynamic

testing of all seats approved for occupancy during takeoff and landing. The intent of Amendment 25-64 was to provide an improved level of safety for occupants on transport-category airplanes. Because most seating is forward/aft facing on transport-category airplanes, the pass/fail criteria developed in Amendment 25-64 focused primarily on these seats. Side-facing seat installations were not adequately taken into account for transport-category airplanes when this amendment was issued. Therefore, in November of 1997, the FAA issued Memorandum “Side-Facing Seats on Transport Category Airplanes” and draft Issue Paper “Dynamic Test Requirements for Single Place Side-Facing Seats” to address the dynamic certification of side-facing seats. The memorandum and the issue paper introduced requirements for Thoracic Trauma Index (TTI) and lateral pelvic acceleration, which were in addition to the existing injury criteria requirements of § 25.562(c). The specified conditions are required to be measured during dynamic testing of the side-facing seats and in compliance with the limitations to be demonstrated.

Applicability

As discussed above, these special conditions are applicable to the Model G250. Should GALP apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the Federal Register. However, as the certification date for the

Model G250 is imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type-certification basis for GALP Model G250 airplanes.

1. Dynamic Test Requirements for Side-facing, Single-occupant Seats

In addition to the airworthiness standards in §§ 25.562 and 25.785, the following special conditions provide injury criteria and installation/testing guidelines that represent the minimum acceptable airworthiness standard for side-facing, single-occupant seats:

2. The Injury Criteria

(a) Existing Criteria: All injury protection criteria of § 25.562(c)(1) through (c)(6) apply to the occupant of a side-facing seat. Head-injury criterion (HIC) assessments are only required for head contact with the seat and/or adjacent structures.

(b) Body-to-Wall/Furnishing Contact: The seat must be installed aft of a structure, such as an interior wall or furnishing, that will support the pelvis, upper arm, chest, and head of an occupant seated next to the structure. A conservative representation of the structure and its stiffness must be included in the tests. It is recommended, but not required, that the contact

surface of this structure be covered with at least two inches of energy-absorbing protective padding (foam or equivalent) such as Ensolite.

- (c) Thoracic Trauma: TTI injury criterion must be substantiated by dynamic test or by rational analysis based on previous test(s) of a similar seat installation. Testing must be conducted with a Side Impact Dummy (SID) Anthropomorphic Test Device (ATD), as defined by 49 CFR part 572, Subpart F, or its equivalent. TTI must be less than 85, as defined in 49 CFR part 572, subpart F. SID TTI data must be processed as defined in Federal Motor Vehicle Safety Standard (FMVSS) part 571.214, section S6.13.5.
- (d) Pelvis: Lateral pelvic acceleration must be shown by dynamic test or by rational analysis, based on previous test(s) of a similar seat installation, to not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS part 571.214, section S6.13.5.
- (e) Shoulder Strap Loads: Where upper-torso straps (shoulder straps) are used for occupants, tension loads in individual straps must not exceed 1,750 pounds. If dual straps are used for restraining the upper torso, the total strap-tension loads must not exceed 2,000 pounds.

3. General Test Guidelines

- (a) One longitudinal test with the SID ATD or its equivalent, undeformed floor, no yaw, and with all lateral structural supports (armrests/walls).

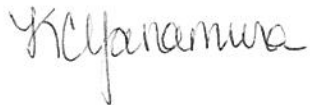
Pass/fail injury assessments: TTI and pelvic acceleration.

- (b) One longitudinal test with the Hybrid II ATD, deformed floor, with 10 degrees yaw, and with all lateral structural supports (armrests/walls).

Pass/fail injury assessments: HIC; and upper-torso-restraint load, restraint-system retention, and pelvic acceleration.

(c) A vertical (14G) test is to be conducted with modified Hybrid II ATDs with existing pass/fail criteria.

Issued in Renton, Washington, on **MAR 18 2011**

A handwritten signature in dark ink, appearing to read "K. C. Yanamura". The signature is written in a cursive, flowing style.

K. C. Yanamura
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service